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# The Social and Emotional Development of Preschool Children Under Two Types of Educational Program

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GEORGE G. THOMPSON

# I. Introduction

In the latter part of the eighteenth century Rousseau (31, p. 115) gave the world his philosophy for the education of the young child. His classic treatise took one of the most extreme positions, known to the experimenter, in that group of educational philosophers that favors permitting the child to work out his own difficulties by more or less a "trial-and-error" method. Rousseau wrote:

> ". . . if you could bring up your pupil healthy and robust to the age of twelve years, without his being able to distinguish his right hand from his left, the eyes of his understanding would be open to reason at your first lesson; void both of habit and prejudice, his passions would not operate against your endeavours, and he would become, under proper instructions, the wisest of men. It is thus, by attempting nothing in the beginning, you might produce a prodigy of education."

Philosophical thought about the education of young children has evolved a great deal since the time *Emilius* was written; the numerous preschools and kindergartens that dot the country stand as silent testimony to such an evolution toward "planned play" for young children.

At the present time it still seems possible that there may be some difference of opinion among educational philosophers who underwrite the policies of our preschools as to what extent the teacher should plan and participate in young children's play activities. Just what the status of consensus among preschool teachers is in 1941 would be difficult to state. However, there is some evidence for the consensus among preschool teachers in Langdon's (20, p. 272) study of 1933. The data from which Langdon makes certain generalizations were collected by the use of a check list of 1062 items of particular teaching practices which each teacher rated on an eleven-point scale for an estimate of the frequency of her use of such a teaching technique. Nursery school teachers from 153 preschools located in different parts of the United States participated in this study. Among the several generalizations drawn from these data is found the following general statement: "In the play activities of the children the most emphasis is given by the nursery school to those acts which follow the lead of the children, supplementing their interest with information or help in achieving skill in things spontaneously attempted."

In the present experiment it was desired to construct two theoretical curricula that would be separated by rather a large distance with regard to teacher-participation, ranging from little teacher guidance to a high degree of teacher guidance in children's activities.

The theoretical curricula, A and B, were the result of an extended series of conferences; conferees being Eleanor Lack White, Dr. Boyd McCandless, George Thompson, Dr. Ruth Updegraff, and Dr. Beth Wellman.

It is possible that none of the conferees would underwrite all of the educational procedures implicit in either of the educational programs; however, all of the collaborators felt that the two curricula constructed were sufficiently different to produce significantly different social and emotional development in the two groups of children exposed to them for a period of eight months. Therefore, the two curricula were thought satisfactory for research purposes, although neither program might be considered optimal by educational philosophers for producing

the largest possible increments in social and emotional growth.

In constructing the curricula it was thought feasible to make the one curriculum, designated as A, a "group atmosphere" in which the teacher made of her own initiative a minimum of contacts with the children, permitting the latter to work out their own plans for the school day and giving assistance to them only upon request. The teachers were to intervene in the children's activities only when undue danger was threatened toward the children or the equipment. The children responding to this curriculum will be designated in this research as "Group A" or "the group with little teacher guidance."

In constructing the other curriculum, B, it was thought feasible to make plans for a "group atmosphere" in which the teacher would attempt to become a warm friend, a guider, and in general would more actively participate in the children's play experiences as an interested and helpful adult.

Both curricula A and B were constructed to be responsive to the children and to insure the children's physical safety. The two fundamental differences between the two curricula were: 1) in curriculum B the teacher was instructed to develop a particularly warm friendship with each child; in curriculum A such a cultivation of friendship with the children was not to be emphasized; and 2) in curriculum B the teacher was instructed to stimulate the children's activities by her skillful arrangement of the play materials and to help the children develop their self-initiated activities by giving them information and help whenever she felt that such information and help would be to their advantage; in curriculum A the amount of teacher participation in the children's play experiences was to be dependent on the children's requests for help and information from the teachers.[1]

It is a commonplace to point out that the differential, teacher-child relationship, selected for "study in isolation" for this research is only one of the several operating in a preschool situation; i.e., some of the other differentials are number and types of play materials, personalities of the teachers, and experience and training of the teachers. Although it is probably impossible with our own present state of knowledge to set up two completely controlled curricula, an attempt was made in this study to equate all of the known variables between the two groups except the controlled differential variable, type of teacher-child relationship.

A stepping-stone for research such as the present has been given by Jersild and Fite (14, p. 166): ". . . Nursery schools can be run too much on the theory that if only one throws a number of children together, gives them plenty of toys and equipment and good meals and naps, great benefits will come to the children who attend. Actually, many good results may come from this policy, but the writer believes that more could be done than usually is, if the teachers would use less of the hands-off policy and actually take more of a hand in helping individual children in specific ways. . . ."

Updegraff (34, p. 12) states: "Three of the outstanding needs in the field of preschool education are: (1) comprehensive, yet specific, statements of objectives formulated in terms of the child's needs; (2) means of measuring the child's development in order to direct his educational program; (3) evaluations of environmental modifications according to

[1] Theoretical programs, A and B, are described more in detail in section III.

their effectiveness in stimulating the child's development."

The statements of objectives for curricula A and B in this research are formulated in terms of meeting in varying degrees the child's social and emotional needs; additional objectives and emphases would be necessary, it seems to the author, if one were formulating them in terms of the child's intellectual or motor development.

The experimenter essayed to do the following things in this study:

1. To set up two preschool programs that differed, theoretically, in terms of the number and types of contacts the teachers had with the children in each curriculum; and to equate for the two groups other known variables that might influence social and emotional growth such as:
   a. teachers (two of the teachers, the head teacher and one of the assistants, spent an equal amount of time in each group)
   b. play materials (the same play materials were available to both groups)
   c. time of exposure to the program (the children were exposed to the two "group atmospheres" the same length of time, a few days over eight months)
   d. socio-economic status of the parents
   e. the social and emotional stati of development of the children in the two groups (the children were equated in the two groups at the beginning of the experiment by ratings of general personality characteristics—the efficiency of this rating is presented in section IV, as determined by the initial measurements of social and emotional development)
   f. intelligence and chronological age (the children were equated in the two groups on chronological age and on IQ; for the latter, IQ scores were available at the time the groups were formed for only those children who had attended preschool the previous year and had been given intelligence tests—the efficiency of this equating for the total groups as determined by tests given in the fall is presented in section IV).
2. To instruct the teachers as to their behavior in the two programs (this was done through a series of conferences with the head teacher and her assistants).
3. To measure both at the beginning and at the end of the preschool year the social and emotional development of the two groups of four-year-old children exposed to the different curricula (this was done by measures described in section III).
4. To measure the differences between groups A and B during the school year in the number and types of teacher contacts with the children and the number and types of other-children's contacts with an observed-child (the measurement of these environmental impacts on the children in the two groups is described in section III).
5. To point out the differential constituents of the two "group atmospheres" that seem to be related to differentials in group development in the social and emotional areas (this is to be done by showing which measured environmental impacts are significantly different for the two groups and which types of social and emotional development are significantly different for the two groups).

## II. Results of Other Experimental Investigations

Several investigators have been interested in the effects of preschool attendance upon social and emotional behavior. Among them may be mentioned: Andrus and Horowitz (1), Caille (2), Goodenough (7), Hagman (9), Hattwick (10), Horowitz (11), Horowitz and Smith (12), Jersild and Fite (14), Jersild and Markey (15), Jöel (16), Kawin and Hoefer (17), Koch (19), Lippitt (22), Mallay (23), Messenger (25), Page (27), Parten (28, 29), Skeels, Updegraff, Wellman, and Williams (33), Walsh (35). The kinds of behavior studied were: insecurity, resistance, general social adjustment, talkativeness and laughter, independence, companionship, inhibition, general activity, sociality, conflicts, self-control, popularity, successful social activity, social maturity, reaction to failure, ascendance, leadership, social participation, dominance and aggressiveness, initiative, and self-reliance. In these studies comparisons have been made in some instances between children with nursery school experience and children without nursery school experience, and between groups of children with differing lengths of nursery school attendance; and in some instances correlations have been run between length of nursery school attendance and the behavior being studied. Cushing (4), Greene (8) and Peterson (30) compared the social and emotional development of kindergarten children who had previously attended preschool with kindergarten children who had not previously attended preschool. The kinds of behavior studied were social maturity, general adjustment, and independence. The results reported in all of these studies vary from no recorded effect of nursery school attendance to a significant difference, according to the behaviors studied and the groups compared. However, since internal characteristics of the environments were not measured and differentiated, these studies are not directly relevant to this research; they cannot be directly compared with the present investigation that attempts a "study in isolation" of a constant variable (teacher-child relationship) and its effect on the social and emotional development of preschool-aged children.

The only study reported in the research literature, within the knowledge of the author, that attempts to study the effects of different curricula on preschool-aged children is an unpublished study of Carr (3). Carr in a companion study to McCandless (24) attempted to study the effects of an "intellectually enriched" curriculum on the social and emotional development of children of very superior intelligence. Carr concluded that the curriculum with "intellectual enrichment" as its primary aim did not make the group of six children reacting to it inferior in social and emotional development to the matched-control children experiencing the regular nursery school curriculum.

The present research may be considered as an experiment that attempts to study the effects of different nursery school curricula on the social and emotional development of young children at a more "micro-level" and in a more "restricted setting" than any of the previous studies of the effects of nursery school experience reported in the research literature.

## III. Methods

### SUBJECTS AND GENERAL PLAN

THE SUBJECTS for this experiment were twenty-three children enrolled in the four-year-old group of the Iowa Child Welfare Research Station's preschool laboratories. These children were divided into two groups after the first week of preschool attendance, equated as nearly as possible on chronological age, intelligence (IQ scores were available for those children who had attended preschool the previous year), socio-economic status of parents, and general personality factors (the latter equating was done according to the pooled-judgments of Eleanor Lack White, Dr. Boyd McCandless, George Thompson, Dr. Ruth Updegraff, and Dr. Beth Wellman). Twelve of the children were assigned to environment A; these children attended preschool only in the afternoon, playing from one until three o'clock and resting from three until five o'clock. Eleven of the children were assigned to environment B; these children attended preschool only in the afternoon, playing from three until five o'clock and resting from one until three o'clock. Both groups of children met in the same preschool building and played with the same materials at different times in the afternoon.

Perhaps the best formal formulation of the principles underlying the two curricula, A and B, is included, in outline form, in a memorandum of Dr. Ruth Updegraff to the experimenters and to the teachers at the beginning of the experiment. Excerpts from this memorandum follow:

### PROGRAMS A AND B

The most important and the only two fundamental differences in the programs are these:

1. In program B the teacher not only acts as an understanding, dependable, interested guide, immediately ready in case of appeal and a secure bulwark in situations of danger and extreme difficulty (as in A), but there is between each child and his teacher a particular friendship. This friendship is based upon (1) interchanges in conversation of a somewhat personal sort, (2) an evident enjoyment by the teacher of each child, (3) a real meaningful contact between the home and the school and (4) the probable increase in contacts which will be due to the teacher's part in many activities as they develop.
2. In program B the children's activities are not dependent entirely upon a child's remembering or seeing a certain piece of equipment or activity, all of which are in readiness (as in A), but are influenced (*not* by verbal suggestions of the teacher) (1) by her skillful obtaining and arrangement of equipment to give the children ideas for activities and (2) her ability through her information, enthusiasm and cooperation to capitalize on these activities (in response to children's questions and their expressed ideas) so that she can help the children enlarge and develop them. She is *not* to suggest activities directly, impose her ideas verbally or produce products or activities which are heavily dependent upon teacher participation. Her aim is to guide the child's thinking into channels in which he may produce ideas; it is also to help the child to take over self-control, aware of reasoned principles of action.

#### *Program A*

Materials

1. Same available as for B.
2. Not conspicuously arranged.
3. Child is aware of possibilities in the way of materials to be used.

*Program B*

Materials

1. Same available for B and A.
2. Arrangment is such as to suggest activity.
3. Materials chosen with an eye to suggesting certain "cores" of activity or subject mater. However, several such "cores" should usually be available to allow choice. All the children do not need to engage in any one simultaneously. Continuity may be maintained by arranging the environment attractively rather than through verbal commands or suggestions.
4. Child is aware of other available materials.

As so often happens in longitudinal studies of even so short a period of time, some of the subjects had to be dropped from the experimental results. One of the subjects in group B moved away from Iowa City shortly after the Christmas holidays. Two subjects were transferred from environment B to environment A and one of the subjects was transferred from A to B. The reason for the transfers was outside the control of the experimenter. This loss of four subjects left eleven children in group A and eight subjects in group B.

The children were exposed to the two programs for a period of eight months. An attempt was made to equate for the two groups the possible differential effects of teacher personalities. The head teacher taught in both groups for the entire school year. The assistant teacher who taught in group A for the first half of the school year was transferred to group B for the remainder of the school year. Unfortunately it was necessary to replace the assistant teacher who taught in group B for the first half of the school year with a newly-appointed teacher. The new assistant teacher taught in group A during the last half of the school year.

All of the observational and experimental measures of social and emotional development used in this study have been employed in previous studies. They are measures of 1) social participation, 2) leadership, 3) ascendance, 4) nervous habits, and 5) constructiveness (when faced with possible failure).

An attempt was made to have the number of indoor and the number of outdoor observations proportional to the relative amounts of time that the children spent in both places.

Initial and terminal measurements of social and emotional development were taken. The initial measurements were started November 1 and were completed by December 15; the terminal measurements were started April 15 and were completed by May 30.

An observational technique was constructed to measure the types and number of teacher and other-child environmental impacts received during 400 minutes of observation for each child distributed over the preschool year.

## OBSERVATIONAL TECHNIQUES AND PROCEDURES FOR MEASURING SOCIAL AND EMOTIONAL GROWTH

### *I. Social Participation*

This method of measuring social participation was devised by Parten (29); the observations were made during the free-play of young children. Parten defined and observed the following types of social behavior:

Unoccupied behavior
Onlooker
Solitary, independent play
Parallel activity
Associative activity
Cooperative or organized supplementary play

Arbitrary weights were assigned to each category of behavior; these weightings

ranged from −3 for unoccupied behavior to +3 for cooperative or organized supplementary behavior. The algebraic sum of a series of observations gave the score for each child observed. Parten stated that 20 one-minute observations on 42 children resulted in an odd-even correlation of +.90 for the reliability of the sampling. Her average observer-reliability with three other observers was 89 per cent. The combined ratings of five teachers on social participation correlated +.88 with her social participation scores secured by this method on 60 observations; this provided the only known criterion for validity.

Parten's scale was adopted for this study, as presented in the literature, with the exception that 30 one-minute observations were taken instead of 20. The agreement for two observers on 50 one-minute observations was 98 per cent, using the formula:[2]

$$\frac{2 \times \text{number of agreements}}{\text{total of observer A} + \text{total of observer B}}$$

### *II. Leadership*

This method of observing manifestations of leadership in young children was also devised by Parten (28); the records for leadership were taken at the same time as the records for social participation. The behavior of the children for the one-minute samplings was recorded by the observers as one of the following types of leadership or non-leadership:

Following
Independently pursuing his own ends
Both directing and following
Reciprocally directing
Directing

Four other observers recording with Parten obtained an average of 89 per cent agreement with her in recording these types of leadership. Arbitrary weights were assigned to the different types of behavior; these weights ranged from a −2 for following to a +3 for directing. The total score was secured by adding these scores algebraically for a series of observations. The odd-even correlation of scores for 42 children was +.73 for 30 observations. Combined ratings of five teachers on leadership correlated with leadership scores on 60 children to the extent of +.81; this served as the criterion of validity.

This scale, as developed by Parten (28), was employed in the present study with one modification. The category of reciprocally directing seemed to occur so infrequently in the present study that it was combined with the category directing and a +2 was assigned to this category as a weighting; hence the weightings ranged from a −2 to a +2. The agreement for two observers on 50 one-minute observations was 90 per cent.

### *III. Nervous Habits*

A measurement of nervous habits was taken by the observational method patterned after Carr's (3) modification of Olson's (26) method. In the present experiment 30 one-minute observations were taken of the following nervous habits: oral, nasal, hirsutal, genital, orbal, and aural. The odd-even correlation of 30 observations as computed by the experimenter was +.86. In this method the child was watched for one minute; if during this period the child exhibited any one of the six nervous habits listed he was given a score of one; nervous habits in addition to this one, if occurring during the one minute, were not recorded. The agreement for two

[2] This formula is used throughout this study for the calculation of percentages of agreement.

observers for 50 one-minute observations was 95 per cent.

## EXPERIMENTAL TECHNIQUES AND PROCEDURES FOR MEASURING SOCIAL AND EMOTIONAL GROWTH

### *I. Ascendant Behavior*

Jack (13) studied ascendant behavior by using a sand box that contained three small animals, two small cars and a group of sand toys; two children were introduced into the room containing this sand box and these toys and the following behavior was recorded for both children:

Verbally attempts to secure materials
Forcefully attempts to secure materials
Succeeds in securing materials
Defends, snatches back materials
Verbally attempts to direct child's behavior
Companion complies to direction
Forbids, criticizes, reproves companion
Provides pattern which companion imitates

This behavior of the children was observed through a one-way-vision screen. Jack made ten pairings for each child (each pairing lasting five minutes) and secured an odd-even correlation of +.80 on ten partial scores versus ten. She reported a 95 per cent agreement with one other observer on one hundred minutes of observation. She, also, secured a correlation of +.81 between total ascendance score and a composite of three teachers' ratings on ascendance. Page (27) later found that the odd-even correlation for four pairings was as high as that of Jack's from ten pairings; Page also found a correlation between the total score on five pairings and the total score on ten pairings of +.95. Page reports correlations between total ascendance scores and a composite of three teachers' ratings of +.52, +.69, and +.39 for two-, three-, and four-year-old children, respectively.

In the present study Page's (27) modification of Jack's (13) procedure was adopted and each child was paired with five other children. Each child's score was the total number of times in five five-minute pairings that he 1) attempted to secure play materials from his companion, 2) attempted to direct or criticize his companion, 3) was successful in directing, in providing a pattern of behavior for his companion, or in defending his own play materials. The agreement of two observers for one hundred minutes of observation was 95 per cent.

### *II. Reaction to Failure*

Keister (18) devised two test situations to measure the behavior of young children in failure: 1) a weighted-box test and 2) a puzzle-box test; these tests were possible to solve, but solution was not probable by young children. During the fifteen minutes of the puzzle-box experimental situation the following types of performance or verbal behavior were checked during each half-minute:

Attempts to solve alone
No overt attempt
Asks another to solve
Asks help
Stops trying
Destructive behavior
Rationalizes (indifference, distaste, postponement, shift of responsibility, and blame)

Also during each half-minute the following types of emotional behavior were observed and checked:

Interest
No emotional manifestations
Indifference
Smiles
Laughs
Sulks

Cries
Whines
Yells
Motor manifestations of anger

Keister (18) reports no observer reliability or percentage of agreement between observers.[3] To compute reliability of the test a list was made of the subjects who, on taking the puzzle-box test, gave an undersirable response, that is who showed at least two of the five types of responses defined as undesirable: 1) retreat from the task, 2) repeated and numerous requests for help, 3) manifestations of destructive behavior, 4) rationalizing, and 5) exaggerated emotional responses; a similar list was made up of the subjects showing up thus on the basis of responses they gave in the weighted-box test; the percentage of agreement was computed between the two lists and was found to be 72.

A partial test of the validity of her procedure was worked out by showing the percentage of agreement between those subjects who manifested one or more types of immature responses on the tests and scores of 6 or more on teachers' ratings of two items of behavior maturity; this percentage of agreement was 56.

In the present study the experimenter decided to make some modifications in Keister's procedure of scoring. Such modifications would seem to make the test a measure of "constructive behavior when faced with failure." Keister (18, p. 58) states: "It would be well not only to arrange duplicate or comparable forms of the two tests but also to derive some method of scoring the tests. . . ." The experimenter devised the following method of scoring the puzzle-box test. Using only the types of behavior listed as performance or verbal, it was decided that each half-minute in which the child exhibited *only* that behavior classified as "attempts to solve alone" would be considered as a positive unit of "constructiveness"; and that each half-minute in which the child exhibited any of the other possible types of behavior listed under the category of performance or verbal (even though this half-minute also included "attempts to solve alone") would be considered as a negative unit of "constructiveness." The criterion score was then obtained by calculating the algebraic sum of the negative and positive units of behavior. For this type of observation the percentage of agreement between two observers for 90 minutes of observation was 92. It is plausible to believe that the reliability of the present test (as scored by the experimenter) is rather low and somewhere in the vicinity of that secured by Keister, as the most frequently occurring items employed by Keister are used in the present scoring system.

### OBSERVATIONAL TECHNIQUE AND PROCEDURE FOR MEASURING ENVIRONMENTAL IMPACTS

By the use of a week's preliminary observation of the diary type, during which the children were adjusting to the preschool situation and before they were assigned to the two experimental groups (they were assigned to the two groups during the second week), two experimenters[4] set up a large list of behavior items, including: 1) environmental impacts from the teachers and other children on the observed-child,

[3] By private correspondence Miss Keister reports that the percentage of agreement between two observers was computed for this experimental situation and was found to be above 90 per cent.

[4] Boyd McCandless and the experimenter set up the measures of environment jointly with the direction of Dr. Beth Wellman.

2) behavior overtures of the observed-child toward the teachers, and 3) behavior reactions of the observed-child. This list included actually-recorded examples of child and teacher behavior under each category that the experimenters felt appropriate to be listed under that title. This reference list served as a basis for the later observations and their subsequent analysis.

It was decided that the diary type of observation (with the listed types of behavior as a ready reference during the making of the observations) was the best method for this research, since the experimenters were entering a relatively unexplored area and did not know a priori what variables in the environment were going to be fruitful in differentiating the two curricula. It was also decided that the observations should be twenty minutes in length, since this would provide for some continuity in the child's environmental stimulation and his social interactions with other children and the teachers.

Twenty observations were taken on the activity of each child during the course of the year (making 400 minutes of observation for each child); these observations were roughly distributed over the school year and were representative samples of the amount of time spent in indoor- and outdoor-play.

The percentage of agreement between two analysts in placing the behavior items from the diary records in the various categories was 85 for 100 minutes of observation (five twenty-minute records). $\text{Analyst}_{M}$ (McCandless) and $\text{analyst}_{T}$ (Thompson) analyzed three records of $\text{observer}_{M}$ (McCandless) and two records of $\text{observer}_{T}$ (Thompson) to secure the percentage of agreement of 85.

After securing the percentage of agreement for analysis, it was possible to secure observer reliability; this percentage of agreement between two observers, taking observations of the same children at the same times, was found to be 92 for 100 minutes of observation. $\text{Analyst}_{M}$ analyzed three records of $\text{observer}_{T}$ and two records of $\text{observer}_{M}$; $\text{analyst}_{T}$ analyzed three records of $\text{observer}_{M}$ and two records of $\text{observer}_{T}$. The results of the analysis of the five twenty-minute records of $\text{observer}_{T}$ were compared with the results of the analysis of the five twenty-minute records of $\text{observer}_{M}$ to secure the percentage of agreement of 92.

The reliability of sampling for each behavior item was computed at the end of the preschool year; these reliabilities will be presented when the individual items are considered.

As was expected some of the items of behavior were ill-chosen; some of them occurred very infrequently, hence it was impossible to secure reliability of sampling. In the final analysis the following numbers and types of behavior categories were retained: 1) 18 teacher and other-children environmental impacts on the observed-child; 2) four behavior categories of the observed-child;[5] and 3) five types of observed-child's initiated overtures toward the teachers.[6] These behavior categories with some representative examples of behavior are as follows:

### *Teacher and Other-Children Environmental Impacts*

#### *Teacher Impacts*

1. The teacher gives social and ob-

[5] The four behavior categories of the observed-child are treated in the section (VI) on results.

[6] The observed-child's initiated overtures and feelings tone toward the teachers are included in the description of environments A and B, section V, because the experimenter feels that such information may give the reader a more complete picture of the interacting social forces in the two "group atmospheres."

jective information to the observed child.

This information was given either on the child's request or was volunteered by the teacher. The information pertained both to objective and social phenomena.

"You'll have to have a place in between for passengers to get through; maybe you need a box."

"I think someone must have hit it hard to bend it that way."

"He hit you, because you tore down his house (blocks)."

Reliability of sampling = +.83[7]

2. The teacher gives the observed-child verbal and/or physical help.

This item differs from item 1 (teacher gives information) largely in that verbal and/or physical help always had some direct reference to the activity in which the observed-child was engaged at the time the help was given and such help was given to further the child's success with that specific activity.

"Cut them here and the edges will fit better" (the teacher demonstrates).

Teacher holds wagon so that it won't roll from under the child who is standing on it.

Teacher removes another child who is hitting and biting the observed-child.

Reliability of sampling = +.46

3. The teacher makes a structuring suggestion about the observed-child's present and/or future activities and behavior.

These structuring suggestions were made by the teachers to suggest either a new activity or a rather complete and long-time extension of an activity already being pursued by the child. The structuring suggestions were made by the teachers when the child either had not started or had completed an activity or when the child had exhausted his imaginative resources as to how an activity in which he was engaged might be extended.

"You might change it so that it would fit two people."

"You could look in some of these books and see how they (airplanes) are made."

"Maybe you need a house that would fit a snake better than that square one."

Reliability of sampling = +.89

4. The teacher asks an objective and/or social leading question.

These leading questions were meant by the teachers to stimulate further conversation between the child and the teacher, during which conversation it was hoped that the child might arrive at a correct solution for his social or objective problem without being told the correct solution by the teacher.

"Do you know why I did it this way?"

"Why did you do it that way?"

"How can we fix it so that we can reach it?"

"Why do you think that she hit you?" (directed to a child, crying, who had just hit another child with a block and had been hit in return).

Reliability of sampling = +.83

5. The teacher is friendly with the observed-child.

There is some overlapping between this item and the others; because the teacher might be friendly when giving information or help, making structuring suggestions, etc. This item was recorded whenever the teacher smiled at the child, patted him, or talked in a friendly way with him.

"It (hurt finger) will be all right in a little while." Pats child on the shoulder.

Teacher smiles at child who is having a hard time putting on his rubbers.

Teacher pats child who has stumbled. He smiles and runs off.

Teacher talks to child in a friendly and intimate manner.

Reliability of sampling = +.83

6. Teacher ascendance to observed-child to stop behavior.

The teacher asked the child to stop any behavior that was unduly damaging to the preschool equipment, to other children, or

[7] The reliability of sampling for all of the environmental behavior items was computed by correlating ten-odd-observations with ten-even-observations. By the use of the Spearman-Brown prophecy formula an estimate was computed for the reliability of twenty observations for all of the behavior items.

likely to be dangerous for his own welfare and physical safety.

"Ricky!" (in a warning voice not to hit another child with a shovel).

"You'd better come on down from there." (Child was on a shaky ladder.)

"Sit down!" (to a child who persists in standing as an obstruction to the other children's view when they are looking at pictures as a group).

Reliability of sampling = +.81

### 7. Teacher is stern.

Teacher contacts were considered stern when the teacher seemed successful in conveying to the child her disapproval of his behavior either vocally or by facial expression and tone of voice. There is some overlapping of this behavior item and the item of ascendance to stop behavior, but this was not always true.

A quiet, stern tone of voice.

Taking the child and setting him on a chair with firmness, but no verbal accompaniment.

In a calm tone: "I'm not *playing* now; go on to your nap."

Long, level, forbidding stare at child.

Reliability of sampling = +.89

### 8. Teacher ignores child approach.

The teacher, either through preoccupation or by personal inclination, ignores a child contact or approach, even when the child repeats the overture several times.

Child: "Look at my wheels go around!" Teacher ignores.

Child: "Help me, teacher!" Child whines. Teacher ignores and moves away.

Child: "I dug this deep, didn't I?" Teacher ignores.

Reliability of sampling = +.87

## *Other-Child Impacts*

### 1. Observed-child is given information.

Other children, voluntarily or upon request, give the observed-child objective or social information—largely objective.

"This is a corncob."

"You can play with me today if you'll be mama."

"He's in the kitchen."

Reliability of sampling = +.97

### 2. Observed-child is given help.

Other children, voluntarily or upon request, give the observed-child help. This help was either verbal or physical or a combination of both. It differed from information when it was verbal in that it always pertained to the activity that the observed-child was engaged in at the time the help was given.

"That's goin' fall over if you don't make it straight."

Child helps observed-child push a big box over.

Child pushes wagon out-of-way for observed-child who is on tricycle.

Reliability of sampling = +.92

### 3. Observed-child is rejected by other children.

The observed-child is rejected from a play situation by either one other child or by a group of children; the observed-child may also be a part of a group (two or more) that is rejected. The observed-child could be rejected before he had made any overtures toward joining a group.

"You can't play with us today—just George and Jimmy."

"Go away; girls can't be firemen."

"Prudy and Susan can't come into our house—No! No! go away!"

Reliability of sampling = +.91

### 4. Observed-child is refused or ignored by another child or by a group of children.

Whenever the observed-child made a verbal request and this request was ignored or refused by another child or by a group of children, it was considered to fall into this category. The observed-child's request was often one for information or help; but sometimes it was also a warning to protect his own properties of play.

Observed-child: "Can I see inside your house?" Other child: "No!"

Observed-child: "I'd like to have that wagon when you are through with it." Other child ignores and rides away.

Observed-child: "Be careful; that's my house!" Other children (two on tricycles)

ride on through and tear down observed-child's block house.

Reliability of sampling = +.97

5. Observed-child is given materials by another child.

Another child, either upon request or spontaneously, gives the observed-child play materials.

"You want a car to run on your road; here you can have mine."

"Here's a curved block." (Hands block to observed-child.)

Other child gives materials requested by the observed-child without comment.

Reliability of sampling = +.84

6. Other children comply to observed-child's requests.

These requests, and the compliance to them by other children, always referred to social phenomena; i.e., the observed-child requested a playmate, social approval, attention, etc.

Observed-child: "Let's play house." Other child: "O.K., let's."

Observed-child: "We're big coal trucks, aren't we?" Other child: "Yes."

Observed-child: "You like me, don't you?" Other child: "Yes, I like you."

Reliability of sampling = +.96

7. Other children develop a social situation with the observed-child.

Social situations included under this item were defined as light, familiar conversation of the hello-how-are-you nature. Any exchange of two remarks, friendly and social in content, constituted a social situation according to this classification.

Any cases of "gibberish baby-talk" like: Child 1: "Ugy-wog-wog." Child 2: "Puggy-dog-cog."—then shrill laughter on the parts of both children.

Other child: "Hi!" Observed-child: "Hi!"

Other child: "You've been gone a long time." Observed-child: "Yes, I've been visiting."

Reliability of sampling = +.94

8. Observed-child is hit, shoved, or grabbed-at.

Other children hit the observed-child, shoved him, or grabbed-at him with anger or sadistic humor. Such behavior was included under this category only when the subsequent behavior of the observed-child showed that he considered this behavior on the part of other children as being an unfriendly gesture.

Another child hits the observed-child on the head with a block. Observed-child picks up a block and swings at the other child. The teacher intervenes.

Another child shoves the observed-child into the mud. The observed-child cries and runs toward the house, calling to the teacher.

Another child grabs at the observed-child's toy car. The observed-child and other child fight over car.

Reliability of sampling = +.95

9. Observed-child is persecuted by other children.

The observed child was made a scape-goat by other children or by another child by "you're-a-dummy-I'm-better-than-you-are" remarks: only behavior on a verbal level was considered to fall into this category.

"We'll push him (observed-child) out of the window; and he'll pop all over the ground."

"You can't do this because you're not big enough. I'm bigger!" (no difference in the size of the children).

"My dad'll cut your ears off with his sharp knife."

Reliability of sampling = +.96

10. Observed-child is threatened by other children.

This category was differentiated from "observed-child is persecuted" in the analysis by the desideratum that in this item the observed-child knew that the threat could be carried out (at least their knowledge was sufficient to know); whereas in the item of persecution it seemed apparent (from the observer's viewpoint) to both children that the threats were absurd and were made only to "get-the-better" of the observed-child in mild verbal abuse.

"If you don't stop kicking me, I won't give you any of my candy."

"Stop that, or I'll tell the teacher on you."

"You'd better move, or I'll kick you."

Reliability of sampling = +.86

### *Observed-Child Behavior*

#### 1. The observed-child makes rationalizations.

By rationalizations is meant the refusal of the child to "face reality." The act of rationalizing is similar to that type of behavior on the adult level; the child is usually not aware that he is refusing to "face reality"; such behavior is apparent only to an outside observer who has seen the child in many different play situations and has a rather clear-cut idea of the child's actual abilities.

"I can't do that (climb in the jungle-gym) because I'm not big enough."

"You knocked down my building" (when the accused child had not even been near the observed-child's building which collapsed because of poor construction).

"I can't do that, because my mother doesn't want me to play those games."

Reliability of sampling = +.78

#### 2. Observed-child engages in destructive behavior.

The destructive act was directed toward other children's activities, the equipment of the preschool, or toward the teacher. Destructive behavior included all of those acts during which the observed-child "willfully" destroyed property or attempted to do personal damage to the teacher or other children—these acts were usually performed during anger.

"I don't like this train." (Observed-child throws the toy train across the room with some force.)

"I'm gona break this (paint brush)." (Observed-child breaks brush.)

"I hate you (to teacher)." (Hits teacher with block.)

Reliability of sampling = +.92

#### 3. Observed-child engages in property-rights conflicts.

Property-rights conflicts were of both the physical and/or verbal types. They were defined as disputes (one or more verbal and/or physical exchanges with judged manifestations of anger present in both parties) over possession or use of materials, location of play and prerogative.

"That's my trike!" "No, it's mine!" They quarrel and tug over the trike.

"This is my place to stand!" "No, it's mine—get away!"

"It's my turn on the swing now—you had your turn." They quarrel and yell for the teacher.

Reliability of sampling = +.90

#### 4. Observed-child gets equipment for equipment's sake.

This item was recorded every time that the observed-child acquired the possession of equipment that did not lead to an activity or was not used in an activity already started and being engaged in by the observed-child.

Observed-child picks up toy train to keep another child from getting it and then lays it down without playing with it.

Child picks up shovel, holds it as he watches group in the snow, then discards it to play with traction toys.

Child gathers a handful of blocks, then drops them to run toy car on the floor.

Reliability of sampling = +.93

### *Observed-Child's Initiated Contacts With the Teachers*

#### 1. The observed-child makes a bid for the teacher's attention.

Whenever the child demanded the teacher's attention with regard to himself or his activity and it was obvious to the observers that the child did not wish help or information but merely teacher approval, this behavior was considered to fall into this category.

"Teacher, see what I can do!"

"Miss Lack, now watch me; I'm going to jump!"

"Teacher, look at my new suspenders!"

Reliability of sampling = +.86

#### 2. The observed-child makes unfriendly approaches to the teacher.

This type of behavior did not occur very often as the teacher filled the adult role for the most part and by this role demanded respect and obedience. Unfriendly approaches took the form of physical and verbal abuse.

"I'll poke my finger through his (another child) heart; and I'll poke it through yours (teacher) too if you don't watch out."

Observed-child hits teacher with a block;

then looks frightened when the teacher doesn't say anything.

Observed-child: "I don't like you."

Reliability of sampling = +.73

3. The observed-child requests help from the teacher.

The observed-child requests help from the teacher to aid him in an activity, or to help him defend his activity against the destructive behavior of some other child.

"Miss Galloway, help me lift this box; it's so big."

"Miss Lack, make John stop; he's tearing down my house."

"Teacher, hold this while I climb up."

Reliability of sampling = +.91

4. The observed-child requests information from the teacher.

"How can I get those kids to let me play with them?"

"Is he going to play a game with me, too?"

"Why can't we go into the cellar?"

Reliability of sampling = +.95

5. The observed-child requests materials from the teacher.

"Teacher, will you get me some more paste?"

"I want some nails about this long (shows with fingers)."

"Get me a piece of rope and I'll tie it on."

Reliability of sampling = +.78

## IV. Initial Equivalence of Groups A and B

All of the children in the present study were drawn from the upper two socio-economic strata of a university city. In dividing the available children into the two groups, the experimenter was faced with the problem of 1) dividing the children into the two groups by a strictly random method or 2) attempting to equate the two groups on such information as was available. The latter method of dividing the children into the two groups was selected.[8] The bases of equating are presented in section III.

The following tabulations show the efficiency of this attempt to equate the two experimental groups:[9]

*Constructiveness* (when faced with possible failure)

Initial mean for children under A curriculum = 35.18[10] Range: 15-53

Initial mean for children under B curriculum = 31.75[10] Range: 8-59

Difference between means A and B = 3.43

$t = .46$, significant at the 65% level of confidence

From this analysis it is apparent that there is no significant difference initially between groups A and B for Constructiveness (when faced with possible failure).

*Ascendance*

Initial mean for children under A curriculum = 50.00 Range: 26-91

Initial mean for children under B curriculum = 46.62 Range: 32-65

Difference between means A and B = 3.38

$t = .43$, significant at the 68% level of confidence

There is no significant difference initially between groups A and B for Ascendance.

*Social Participation*

Initial mean for children under A curriculum = 42.00[10] Range: 15-69

Initial mean for children under B curriculum = 44.25[10] Range: 28-63

Difference between means for A and B = 2.25

$t = .34$, significant at the 73% level of confidence

There is no significant difference initially between groups A and B for Social Participation.

*Leadership*

Initial mean for children under A curriculum = 28.72[11] Range: 6-73

[8] The method of equated groups has made great strides in popularity in recent years among research workers since more precise methods have been developed in statistics for working with small samples and since statistical methods have been developed by Fisher (5) and his followers for reducing the error term when such variables are controlled. Shen (32, p. 347) reiterates the present experimenter's point of view in a recent article: "An improved experimental design, and one much more generally employed and trusted, is that of groups equated by selection on the basis of some measured character or characters which otherwise would disturb the effects of the experimental variable. Variables most often used as bases of matching are, either jointly or separately, age, intelligence, and initial status in the field of learning under experiment. . . ."

[9] The *t*'s reported for initial equivalence of the groups and for differences between groups A and B in environmental impacts are based on Student's *t* for small samples. All of the *t*'s are based on 17 degrees of freedom; formula: d.f. $= N_A + N_B - 2$. The formula and assumptions involved in the computation of *t* may be found in Lindquist (21). It has been arbitrarily decided among almost all research workers that a *t* of the difference between groups at the 1% level of confidence shall be regarded as a *very high indication* of a true difference between the groups; and a *t* at the 5% level of confidence shall be regarded as a *high indication* of a true difference between the groups; *t*'s at levels of confidence between 5% (not including 5%) and 100% are regarded with a high degree of skepticism as indicating true differences between groups. These rather generally accepted desiderata are adhered to in the present research.

[10] All raw scores for both initial and final measures in both groups have been increased by 30 points to aid in computation; by such a procedure negative scores were made positive in sign.

[11] All raw scores for both initial and final

Initial mean for children under B curriculum = 26.12[11] Range: 9-54

Difference between means for A and B = 2.60

$t = .29$, significant at the 78% level of confidence

There is no significant difference initially between groups A and B for Leadership.

*Nervous Habits*

Initial mean for children under A curriculum = 19.00 Range: 17-24

Initial mean for children under B curriculum = 20.50 Range: 16-25

Difference between means for A and B = 1.50

$t = 1.09$, significant at the 30% level of confidence

There is no signifiant difference initially between groups A and B for Nervous Habits.

*Chronological Age*

Initial mean for children under A curriculum = 52.81 Months Range: 48-58

Initial mean for children under B curriculum = 50.62 Months Range: 46-59

Difference between means for A and B = 2.19

$t = 1.27$, significant at the 23% level of confidence

There is no significant difference initially between groups A and B for chronological age.

*Intelligence Level* (IQ's obtained with Revised Stanford-Binet, Form L)

Initial mean for children under A curriculum = 126.63 Range: 106-158

Initial mean for children under B curriculum = 127.75 Range: 102-147

Difference between means for A and B = 1.12

$t = .15$, significant at no recorded level of confidence

There is no significant difference initially between groups A and B for Intelligence Level (IQ's).

*Socio-Economic Status of Parents*[12]

Initial mean for children under A curriculum = 1.27 Range: 1-2

Initial mean for children under B curriculum = 1.12 Range: 1-2

Difference between means for A and B = .15

$t = .75$, significant at the 50% level of confidence

There is no significant difference between groups A and B for Socio-Economic Status of Parents.

The difference between groups A and B initially on all of the social, emotional and intellectual measurements available are not significant statistically; and the difference between groups A and B initially on Chronological Age and Socio-Economic Status of Parents are not significant statistically.

measures in both groups have been increased by 40 points to avoid the necessity of working with numbers both negative and positive in sign.

[12] Classifications of occupations were taken from Goodenough (6, pp. 501-512).

## V. Observational Description of Environments A and B

In this section the experimenter presents the differences between groups A (theoretically, the group with little teacher-guidance) and B (theoretically, the group with a high degree of teacher-guidance) with respect to the total number of environmental impacts recorded during the school year.

These environmental impacts may be divided into two general groups: I) those originating with the *teacher* and II) those originating with *other children.* In the present experiment it was possible to control the number and types of *teacher* contacts for the two groups within rather broad limits by giving instructions to the teachers. However, this, of course, was not possible with regard to *other children* contacts; one may regard the number and types of *other children* contacts as partially a derivative or resultant of the type of "group atmosphere" produced by the teachers.

For purposes of integrating the presentation of differences in environmental impacts between groups A and B the author has arbitrarily subdivided the above two categories (I) teacher contacts and II) other child contacts) into two further categories: 1) extensive and 2) restrictive. The presentation of differences between groups A and B for number and types of environomental stimuli corresponds to the following schema:[13]

I. Teacher contacts

1) Extensive: the teacher acts in such a way as to further, encourage, or promote the observed-child's behavior.

2) Restrictive: the teacher acts in such a way as to inhibit, restrict, or discourage the observed-child's behavior.

II. Other-child contacts

1) Extensive: another child acts in such a way as to further, encourage, or promote the observed-child's behavior.

2) Restrictive: another child acts in such a way as to inhibit, restrict, or discourage the observed-child's behavior.

### I. TEACHER CONTACTS

#### *1) Extensive*

The following tabulation shows that group B (the highly-guided group) received, during the preschool year, more teacher-extensive environmental impacts than did group A (the group with little teacher guidance). The *t*'s indicate at what level of confidence one may reject the null hypothesis that there is no difference between the groups.

**Extensive Teacher Contacts**

| | *Group A* | | *Group B* | | | | |
|---|---|---|---|---|---|---|---|
| | Means | Range | Means | Range | Diff. | *t* | Level of confidence |
| Teacher gives information | 10.18 | 2-28 | 34.25 | 14-54 | 24.07 | 5.01 | 1% |
| Teacher gives help | 8.45 | 3-17 | 14.25 | 3-23 | 5.80 | 2.76 | 2% |
| Teacher makes structuring suggestions | 1.81 | 0-5 | 19.62 | 11-33 | 17.81 | 8.68 | 1% |
| Teacher asks leading questions | .54 | 0-4 | 4.37 | 1-12 | 3.83 | 3.48 | 1% |
| Teacher is friendly | 2.90 | 0-7 | 17.50 | 4-37 | 14.60 | 4.57 | 1% |

From the foregoing tabulation it is

[13] This schema of presentation is strictly an arbitrary one set up to integrate and clarify the miscellaneous environmental impacts. If the reader wishes to set up some other schema for his own satisfaction or clarity, the data are so presented that such a shift in integration is possible; i.e., a difference between groups A and B is presented for each isolated environmental impact.

evident that group B (the highly-guided group) received a significantly larger number of teacher-extensive contacts than did group A (the group with little teacher guidance) in all of the categories. Those categories for which the difference between groups was significant at the 1% level of confidence and for which group B received the larger number of contacts are as follows:

1) The teacher gives social and objective information to the observed-child.
2) The teacher makes structuring suggestions about the observed-child's behavior and activities.
3) The teacher asks the observed-child an objective and/or social leading question.
4) The teacher is friendly with the observed-child.

The one category for which the difference between groups was significant at the 2% level of confidence and for which group B received the larger number of contacts is:

5) The teacher gives the observed-child verbal and/or physical help.

*2) Restrictive*

The following tabulation shows that although the group means would indicate that the teacher did more restricting, inhibiting, and discouraging in group A than in group B none of these differences between groups is at a sufficiently high level of confidence to reject the null hypothesis that there is no difference between the groups A and B in teacher-restrictive contacts.

One can state that group A (the group with little teacher guidance) tends to have a larger number of restrictive teacher contacts of the type "teacher is stern," than does group B (the highly-guided group). However, this difference between groups does not meet the requirements set up for this research for significance between groups; i.e., no differences between groups will be considered significant unless the level of confidence at which they can be accepted ranges between 1% and 5%. For the other two categories, "teacher ascendance to observed-child to stop behavior" and "teacher ignores observed-child's approach," one may not reject the null hypothesis that there is no difference between groups A and B for frequency of occurrence of these two categories.

### II. OTHER-CHILD CONTACTS

*1) Extensive*

The tabulation (page 20, top) demonstrates that there is no difference between groups A and B in any of the other-child extensive environmental impacts on the observed-child.

The only category that tends toward significance is "the observed-child is given help by other children"; group B (the highly-guided group) received more contacts of this type, but the difference between groups A and B is significant only at the 10% level of confidence.

The experimenter may then conclude from his particular required level of

RESTRICTIVE TEACHER CONTACTS

| | *Group A* | | *Group B* | | | | |
|---|---|---|---|---|---|---|---|
| | Means | Range | Means | Range | Diff. | *t* | Level of confidence |
| Teacher ascendance to the observed-child to stop behavior | 10.81 | 2-27 | 7.62 | 1-15 | 3.19 | .93 | 35% |
| Teacher is stern | 10.72 | 2-24 | 4.37 | 0-12 | 6.35 | 1.92 | 7% |
| Teacher ignores observed-child's approach | 8.00 | 0-31 | 3.75 | 0-9 | 4.25 | 1.32 | 20% |

EXTENSIVE OTHER-CHILD CONTACTS WITH OBSERVED-CHILD

| | *Group A* | | *Group B* | | | | |
|---|---|---|---|---|---|---|---|
| | Means | Range | Means | Range | Diff. | *t* | Level of confidence |
| Observed-child is given information | 41.40 | 16-53 | 41.10 | 21-64 | .30 | .05 | 90% |
| Observed-child is given help | 6.00 | 2-12 | 10.25 | 0-24 | 4.25 | 1.76 | 10% |
| Observed-child is given materials | 3.70 | 2-9 | 4.10 | 1-10 | .40 | .36 | 70% |
| Other children comply to observed-child's wishes or requests | 32.00 | 12-45 | 27.30 | 13-45 | 4.70 | .88 | 40% |
| Other children develop a social situation with observed-child | 63.20 | 38-101 | 73.60 | 50-127 | 10.40 | .94 | 35% |

confidence for a true difference between groups that there was no difference between groups A and B; i.e., one cannot reject the null hypothesis that there is no difference between groups A and B for frequency of occurrence of the following types of other-child extensive environmental impacts:

1) The observed-child is given information.

2) The observed-child is given help (although this tends toward significance; *t* being significant at the 10% level of confidence).

3) The observed-child is given materials.

4) Other children comply to the observed-child's wishes or requests.

5) Other children develop a social situation with the observed-child.

### 2) *Restrictive*

The following tabulation shows that there is a significant difference between groups A and B in the frequency of occurrence of *each* type of other-child restrictive contacts with the observed-child.

In all of the categories group A (the group with little guidance) received more other-child restrictive contacts than did group B (the highly-guided group). One may reject the null hypothesis that there is no difference between groups A and B in other-child restrictive contacts at levels of confidence between 1% and 3% for the following categories:

1) The observed-child is rejected by other children.

2) The observed-child is refused or ignored by other children.

3) The observed-child is hit, shoved or grabbed-at.

4) The observed-child is persecuted by other children.

5) The observed-child is threatened by other children.

### SUMMARY OF ENVIRONMENTAL IMPACTS ON THE OBSERVED-CHILD

I. 1) All of the differences between groups A (the group with little guidance) and B (the group highly guided) in frequency of occurrence of *teacher extensive contacts* are

RESTRICTIVE OTHER-CHILD CONTACTS WITH OBSERVED-CHILD

| | *Group A* | | *Group B* | | | | |
|---|---|---|---|---|---|---|---|
| | Means | Range | Means | Range | Diff. | *t* | Level of confidence |
| Observed-child is rejected by other children | 14.20 | 2-45 | 3.20 | 1-9 | 11.00 | 2.31 | 3% |
| Observed-child is refused, or ignored by other children | 45.00 | 19-62 | 28.20 | 13-53 | 16.80 | 3.01 | 1% |
| Observed-child is hit, shoved, or grabbed-at | 19.80 | 8-37 | 9.80 | 5-14 | 10.00 | 2.73 | 2% |
| Observed-child is persecuted by other children | 22.80 | 11-41 | 10.00 | 7-15 | 12.80 | 3.36 | 1% |
| Observed-child is threatened | 8.80 | 3-19 | 3.80 | 0-7 | 5.00 | 2.32 | 3% |

highly significant statistically. In every case group B received more extensive teacher contacts than did group A.

2) None of the differences between group A and group B is statistically significant in frequency of occurrence of *teacher restrictive contacts.* Only one category of teacher restrictive environmental impacts approaches significance; this category is "teacher is stern"; for this category the mean of group A is higher than the mean of group B.

II. 1) None of the differences between groups A and B is statistically significant in frequency of occurrence of *other-child extensive contacts.*

2) All of the differences between groups A and B in frequency of occurrence of *other-child restrictive contacts* are highly significant statistically.

One may conclude from these findings that the only systematic variables that were different for groups A and B (of those variables that were measured observationally) are environmental impacts included in the two constructs: 1) teacher extensive contacts and 2) other-child restrictive contacts. Group B (theoretically, the highly-guided group) received *more* teacher extensive contacts than did group A and *fewer* other-child restrictive contacts than did group A.

### III. OBSERVED-CHILD'S INITIATED CONTACTS WITH THE TEACHERS

The experimenter presents the observed-child's initiated contacts with the teacher not because they throw any light on the number and types of environmental impacts experienced by the observed-child, but because they are interesting in and of themselves in understanding some of the interacting social forces present in the two group atmospheres.

The following tabulation shows that there was no difference between the two groups in any of the following types of overtures toward the teacher:

1) The observed-child makes bids for the teacher's attention.

2) The observed-child makes unfriendly approaches toward the teacher.

3) The observed-child requests help from the teacher.

4) The observed-child requests information from the teacher.

5) The observed-child requests materials from the teacher.

OBSERVED-CHILD'S INITIATED CONTACTS WITH THE TEACHERS

| | *Group A* | | *Group B* | | | | |
|---|---|---|---|---|---|---|---|
| | Means | Range | Means | Range | Diff. | *t* | Level of confidence |
| Observed-child makes bids for the teacher's attention | 14.09 | 3-48 | 12.50 | 5-30 | 1.59 | .27 | 80% |
| Observed-child makes unfriendly approaches to the teacher | 3.00 | 0-12 | 1.50 | 0-7 | 1.50 | 1.02 | 30% |
| Observed-child requests help from the teacher | 14.72 | 0-33 | 15.00 | 6-38 | .28 | .06 | 90% |
| Observed-child requests information from the teacher | 18.81 | 1-35 | 24.00 | 6-42 | 5.19 | .90 | 30% |
| Observed-child requests materials from the teacher | 5.72 | 1-12 | 4.75 | 0-13 | .97 | .58 | 50% |

## VI. Results

There were no *statistically significant differences* between groups A and B for any of the initial measurements in the social, emotional, and intellectual areas, or in chronological age and socio-economic status of parents; however, there were *some differences* between group means. Such differences between group means, for such small groups, would be extremely difficult to eliminate by the matching or equating technique; because the children composing the two groups would necessarily have to be equated on all of the several variables simultaneously.

Since the exact equating of groups on several variables is so tedious and almost impossible unless one can discard a large unmber of cases, it is fortunate that Fisher[14] (5) has developed statistical techniques that permit one to secure the same increase in precision by using statistical controls. In this procedure, known as analysis of covariance, an allowance for initial differences between groups in a measurement is made in terms of the regression of final on initial scores in that measurement. Analysis of covariance has been used in this research for determining the significance of differences between groups A and B on the social and emotional criterion (final) scores. The *adjusted final means* have the same relative magnitude as if the experimental groups had been alike in initial ability on that measurement being analyzed. The *final adjusted means* are obtained by correcting the *final means* for differences between the groups initially in that measurement. As the two groups were rather well equated on the initial measurements, the *adjusted final means* differ little from the *final means.*

Constructiveness (When Faced With Possible Failure)

| | Initial Means | Range | Final Means | Range | Adjusted Final Means |
|---|---|---|---|---|---|
| A | 35.18 | 15-53 | 26.63 | 9-49 | 26.47 |
| B | 31.75 | 8-59 | 46.37 | 40-54 | 46.69 |

$F = 49.00$, highly significant at the 1% level of confidence

There is a significant difference at the 1% level of confidence between groups A and B terminally in constructiveness (when faced with possible failure). The final adjusted mean of group B (the highly-guided group) is *higher* than the final adjusted mean of group A (the group with little guidance).

Ascendance

| | Initial Means | Range | Final Means | Range | Adjusted Final Means |
|---|---|---|---|---|---|
| A | 50.00 | 26-91 | 43.27 | 29-61 | 42.79 |
| B | 46.62 | 32-65 | 59.50 | 40-75 | 60.17 |

$F = 7.10$, significant at the 2% level of confidence

There is a significant difference at the 2% level of confidence between groups A and B terminally in ascendance. The final adjusted mean of group B (the

[14] Fisher's methods of covariance as used in this study are presented in Lindquist (21).

highly-guided group) is *higher* than the final adjusted mean of group A (the group with little guidance).

SOCIAL PARTICIPATION

| | Initial Means | Range | Final Means | Range | Adjusted Final Means |
|---|---|---|---|---|---|
| A | 42.00 | 15-69 | 36.00 | 9-57 | 36.91 |
| B | 44.25 | 28-63 | 70.38 | 49-85 | 69.13 |

$F = 26.30$, significant at the 1% level of confidence

There is a significant difference at the 1% level of confidence between groups A and B terminally in social participation. The final adjusted mean of group B (the highly-guided group) is *higher* than the final adjusted mean of group A (the group with little guidance).

LEADERSHIP

| | Initial Means | Range | Final Means | Range | Adjusted Final Means |
|---|---|---|---|---|---|
| A | 28.72 | 6-73 | 35.45 | 11-89 | 34.30 |
| B | 26.12 | 9-54 | 60.75 | 33-98 | 62.30 |

$F = 7.38$, significant at the 2% level of confidence

There is a significant difference at the 2% level of confidence between groups A and B terminally in leadership. The final adjusted mean of group B (the highly-guided group) is *higher* than the final adjusted mean of group A (the group with little guidance).

NUMBER OF NERVOUS HABITS

| | Initial Means | Range | Final Means | Range |
|---|---|---|---|---|
| A | 19.00 | 17-24 | 21.36 | 15-28 |
| B | 20.50 | 16-25 | 17.00 | 11-23 |

$F = 3.50$, *not significant* at either the 1% or 5% levels of confidence[15]

There is no significant difference between groups A and B terminally in number of nervous habits.

## OBSERVATIONAL BEHAVIOR OF THE OBSERVED-CHILD

The collected observational data yielded results on some behavior categories of the observed-child which may be of interest to the reader. The experimenter considers all four of the categories to be non-constructive or destructive behavior.

The tabulation (page 24, top) shows that all four of the means are higher for group A (the group with little guidance) than they are for group B (the highly-guided group); but only one of the differences between groups A and B is significant.

Group A (the group with little guidance) produced a *significantly larger* amount of the following type of behavior in the observed-child than did group B (the highly-guided group): the observed-child engages in destructive behavior. There was no *significant difference* between groups A and B in any

[15] Although from mere inspection it is apparent that the children in the B curriculum have demonstrated fewer nervous habits in the final measurement than the children in the A curriculum, according to the statistical theory involved, such a difference in final means might have occurred by chance.

NON-CONSTRUCTIVE, AND DESTRUCTIVE BEHAVIOR OF OBSERVED-CHILD

| | *Group A* | | *Group B* | | | | |
|---|---|---|---|---|---|---|---|
| | Means | Range | Means | Range | Diff. | *t* | Level of confidence |
| Observed-child makes rationalizations | 7.09 | 4-13 | 6.70 | 0-32 | .39 | .12 | 90% |
| Observed-child engages in destructive behavior | 21.00 | 7-56 | 5.00 | 2-15 | 16.00 | 3.27 | 1% |
| Observed-child engages in property-rights conflicts | 4.18 | 0-16 | 3.00 | 0-6 | 1.18 | .62 | 55% |
| Observed-child gets equipment for equipment's sake | 41.09 | 29-63 | 33.00 | 16-46 | 8.09 | 1.55 | 15% |

of the following types of behavior: 1) observed-child makes rationalizations, 2) observed-child engages in property-rights conflicts, and 3) observed-child gets equipment for equipment's sake.

### IQ CHANGES[16]

Since intelligence tests (fall and spring) were given in all of the preschool groups, the data were available for computing IQ changes for the two groups, A and B.

| *Group A* | | *Group B* | | | | |
|---|---|---|---|---|---|---|
| Mean | Range | Mean | Range | Diff. in M.'s | *t* | Level of confidence |
| +2.09 | +15 to −12 | +2.37 | +15 to −9 | .28 | .07 | 90% |

For changes in IQ one may not reject the null hypothesis that there is no difference between groups A and B. Both groups showed slightly higher means on the spring test than on the fall test.

### SUMMARY OF EXPERIMENTAL RESULTS

The differences between groups A and B on the final measures in the social and the emotional areas (using the statistical technique of covariance) are as follows:

1) Group B (the theoretically highly-guided group) was *more constructive* (when faced with possible failure) than was group A. This difference is significant at the 1% level of confidence.

2) Group B was *more ascendant* than was group A. This difference is significant at the 2% level of confidence.

3) Group B obtained a *higher score in social participation* than did group A. This difference is significant at the 1% level of confidence.

4) Group B obtained a *higher score in leadership* than did group A. This difference is significant at the 2% level of confidence.

5) Group B showed *fewer nervous habits* than did group A. This difference is *not significant.*

In brief, the highly-guided group (B) that received a significantly *larger* number of "teacher extensive" environmental impacts and a significantly *smaller* number of "other-child restrictive" environmental impacts showed development significantly different from the group with little guidance (A) in 1) ascendance, 2) constructiveness (when faced with possible failure), 3) social participation, and 4) leadership. There was no significant difference in development between the two groups in nervous habits.

[16] Form L of the 1937 revision of the Stanford-Binet Intelligence Test was used in computing all of the IQ's.

## VII. Summary and Conclusions

The present investigation was undertaken to study the effects of two curricula differing in amounts of teacher personal guidance (other known variables in the two curricula being equal) on the social and emotional development of four-year-old children.

The objectives for the two curricula were formulated in terms of meeting in varying degrees the children's social and emotional needs.

In one group (A) the teachers were instructed to adopt an impersonal policy; they were to give information and help only upon the specific request from a child or a group of children.

In the other curriculum (B) the teachers were instructed to help the child in his relations with other children and in his use of play materials within their judgments as to how each individual child's social and emotional needs might be best met.

Both groups used the same equipment and attended preschool for the same period of time (eight months). The head teacher taught in both groups for the entire school year; one assistant teacher was transferred from group A to group B in the middle of the school year; and the assistant teacher who taught in group B for the first half of the year was replaced by another assistant teacher who taught in group A for the remainder of the school year.

Twenty-three four-year-old preschool children were divided into the two experimental groups at the beginning of the preschool year on the basis of chronological age and such information as was available on IQ and general personality factors. Four cases were "lost" during the experimental period leaving eleven subjects in the group with little guidance (A) and eight subjects in the highly-guided group (B) for the criterion measures in the spring.

Experimental and observational measures that had been previously used by experimenters in other studies were taken in the fall and spring to ascertain the two experimental groups' development in the following social and emotional areas: 1) ascendance, 2) social participation, 3) leadership, 4) constructiveness (when faced with possible failure), and 5) number of nervous habits.

There was no significant difference between groups A and B initially in any of the social and emotional measures, in chronological age, in IQ, or in socio-economic status of parents.

An observational technique was constructed to measure the types and number of teacher and other-child environmental impacts received during 400 minutes of observation for each child distributed over the experimental period.

Analysis of covariance was used to compute the differences between groups A and B on the terminal measurements of social and emotional development.

The experimental and observational measures of development and the observational measure of environmental impacts provide the data for the following conclusions:

1. The highly-guided group (B) showed development significantly different from the group with little guidance (A) in a) ascendance, b) constructiveness (when faced with possible failure), c) social participation, and d) leadership. The B group was more ascendant, more constructive, and showed greater social

participation and leadership.

There was no significant difference in development between the two groups in a) nervous habits, or b) IQ.

2. The highly-guided group (B) received during the course of the experimental period a significantly *larger* number of "teacher extensive" environmental impacts (the construct "teacher extensive" contacts contained the following categories: a) teacher gives social and objective information, b) teacher gives help, c) teacher makes structuring suggestions, d) teacher asks leading questions, and e) teacher is friendly).

The highly-guided group (B) received during the course of the experimental period a significantly *smaller* number of "other-child restrictive" environmental impacts (the construct "other-child restrictive" contacts contained the following categories: a) observed-child is rejected by other children, b) observed-child is refused or ignored by other children, c) observed-child is hit, shoved or grabbed at by other children, d) observed-child is persecuted by other children, and e) observed-child is threatened by other children).

There were no significant differences between the two groups in any of those categories of environmental impacts included in the two constructs, "teacher restrictive" environmental impacts (this construct contained the following categories: a) teacher ascendance to observed-child to stop behavior, b) teacher is stern, and c) teacher ignores the observed-child's approach) and "other-child extensive" environmental impacts (this construct contained the following categories: a) observed-child is given information, b) observed-child is given help, c) observed-child is given materials, d) other children comply to the observed-child's wishes or requests, e) other children develop a social situation with observed-child).

To summarize the conclusions, briefly, one may state: 1) The highly-guided group (B) that received a significantly *larger* number of "teacher extensive" environmental impacts and a significantly *smaller* number of "other-child restrictive" environmental impacts showed development significantly different from the group with little guidance (A) in ascendance, constructiveness (when faced with possible failure), social participation, and leadership. There were no significant differences in development between the two groups in nervous habits and in IQ; also, there were no significant differences between the two groups in any of those categories of environmental impacts included in the two constructs, "teacher restrictive" contacts and "other-child extensive" contacts.

## INTERPRETATION OF FINDINGS

*Other things being equal* (i.e., the constant and equated variables of the experimental groups such as 1) experienced teachers with advanced training in preschool education, 2) children above average in intelligence drawn from the upper two socio-economic strata of a university city, 3) children whose parents have attempted to apply modern child-developmental principles in rearing them, and 4) attendance at a preschool with modern, flexible, and abundant play materials), it seems possible to the experimenter to make the following first approximations to generalizations:

*In preschool environments with personal guidance as the major aim of the curricula,* a) Development in ascendance, social participation, leadership, and constructiveness (when faced with possible failure) is an increasing function of "teacher extensive" environmental im-

pacts (*as defined in this study*) and a decreasing function of "other-child restrictive" environmental impacts (*as defined in this study*).

b) The construct of "other-child restrictive" environmental impacts (*as defined in this study*) is a decreasing function of "teacher extensive" environmental impacts (*as defined in this study*).

c) Development in the reduction of nervous habits or change in IQ *was not a measurable function* of "teacher extensive" environmental impacts (*as defined in this study*) and/or "other-child restrictive" environmental impacts (*as defined in this study*).

The experimental findings demonstrate (within the errors of measurement) that, with other variables being equal between two groups of children and with a sufficiently large difference between the relative amounts of teacher guidance directed at meeting the children's social and emotional needs in two groups, the highly-guided group will show a significantly different development in ascendance, social participation, leadership, and constructiveness (when faced with possible failure) than a group with little teacher guidance.

It follows from the findings of this study that those experimenters wishing to discover environmental factors related to intellectual growth or reduction of nervous habits must look to other sources than the personal guidance program as defined and set up in this experiment. It is beyond the scope of this study to formulate hypotheses as to the nature of the environmental factors that may be related to intellectual growth or development in the reduction of nervous habits.

For those readers wishing to generalize the findings of this study to specific preschool situations the author would like to re-emphasize the italized phrases in the generalizations; i.e., *other things being equal, in preschool environments with personal guidance as the major aim of the curricula,* and *as defined in this study.* There has been no experimental evidence presented either in the research literature or in this study to indicate the manner in which the constant variables of this experiment, if permitted to vary considerably, might mask or modify differences in social and emotional development produced by differences in the amount of teacher guidance.

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